

Making our world more productive



Refrigerants.

Product data summary.



Product information

Type	Product R-Number	Other Common Names	ODP ¹	GWP ²	Boiling Point ³ @ 1atm (°C)	Critical Temp ³ Tc (°C)	Critical Pressure ³ (bara)	ASHRAE Safety Group	Compatible Oils	Retrofit replacement for
HCFC	22		0.055	1810	-41	96	50	A1	MO,AB	
	123		0.060	77	28	184	37	B1	MO	R11, R113
	401A	Suva® MP39	0.033	1182	-33	107	46	A1	MO, AB	R12
	401B	Suva®MP66	0.036	1288	-35	106	47	A1	MO, AB	R12
	402A	HP80	0.019	2788	-49	76	42	A1	MO, AB	R502
	402B	HP81	0.030	2416	-47	83	45	A1	MO, AB	R502
	408A	Forane® FX10	0.024	3152	-44	83	43	A1	MO, AB, POE	R502
	409A	Forane® FX56	0.046	1909	-34	107	45	A1	MO, AB, POE	R12
HFC	23		0	14800	-80	26	48	A1	POE	R13
	32		0	675	-52	78	58	A2	POE	
	134a		0	1430	-26	101	41	A1	PAG-Auto, POE	R12*, R22*
	404A	Suva® HP62	0	3922	-47	72	37	A1	POE	R22*, R502*
	407A	Klea® 60	0	2107	-46	82	45	A1	POE	R22*, R404A
	407C	Suva® 9000	0	1774	-44	86	46	A1	POE	R22*
	407F	Performax™ LT	0	1825	-46	83	48	A1	POE	R22*, R404A
	410A	Genetron® AZ-20	0	2088	-51	71	49	A1	POE	R13B1*
	417A	ISCEON® MO59	0	2346	-39	87	40	A1	MO, AB, POE	R22
	422A	ISCEON® MO79	0	3143	-47	72	37	A1	MO, AB, POE	R22, R502, HCFC blends
	422D	ISCEON® MO29™	0	2729	-43	80	39	A1	MO, AB, POE	R22
	423A	ISCEON® 39TC®	0	2280	-24	100	36	A1	POE	R12
	424A	RS-44	0	2440	-39	86	40	A1	MO, AB, POE	R22
	427A	Forane® FX100	0	2138	-43	85	44	A1	MO, AB, POE	R22*
	428A	RS-52	0	3607	-47	69	37	A1	MO, AB, POE	R22, R502, HCFC blends
	434A	RS-45	0	3245	-45	75	38	A1	MO, AB, POE	R22
	437A	ISCEON® MO49Plus™	0	1805	-29	96	41	A1	MO, AB, POE	R12, HCFC blends
	438A	ISCEON® MO99™	0	2265	-42	85	43	A1	MO, AB, POE	R22
	442A	RS-50	0	1888	-47	82	48	A1	POE	R404A, R507A
	507A	Genetron® AZ-50	0	3985	-47	71	37	A1	POE	R502*, R22*
508B	Suva® 95	0	13396	-88	11	38	A1	POE	R503*, R13*	
M089	ISCEON® M089	0	3805	-53	64	36	TBC (A1)	MO, AB, POE	R13B1	
HFO	1234yf	Opteon® YF, Solstice™ yf	0	4	-29	95	34	A2	PAG-Auto, POE	
	1234ze	Solstice™ ze	0	6	-19	109	36	A2	POE	
Natural /not in kind	170	Ethane	0	6	-89	32	49	A3	MO, AB, POE	
	290	Propane, CARE® 40	0	3	-42	97	43	A3	MO, AB, POE	
	600a	Isobutane, CARE® 10	0	3	-12	135	36	A3	MO, AB, POE	
	717	Ammonia	0	0	-33	132	113	B2	Consult OEM	
	744	Carbon Dioxide	0	1	-57	31	74	A1	Consult OEM	
	1150	Ethylene, Ethene	0	4	-104	9.2	50	A3	MO, AB, POE	
1270	Propylene, Propene, CARE® 45	0	2	-48	91	46	A3	MO, AB, POE		

Common applications

Type	Product R-Number	Refrigeration				Air Conditioning			
		V.Low temp	Low temp	Med temp	High temp	Residential & Light	DX Chillers	Centrifugal chillers	Mobile
HCFC	22		✓ (2-stage)	✓	✓	✓	✓	✓	
	123							✓	
	401A			✓	✓	✓	✓		
	401B		(✓)	✓	✓	✓	✓		
	402A		✓	(✓)					
	402B		✓	✓					
	408A		(✓)	✓	✓				
	409A			✓	✓	✓	(✓)	✓	
HFC	23	✓							
	32		✓			✓			
	134a			✓	✓	✓	✓	✓	✓
	404A		✓	✓					
	407A		✓	✓					
	407C		(✓)	✓	(✓)	✓	✓		
	407F		✓	✓					
	410A	✓ (2-stage)	✓	✓		✓	✓	(✓)	
	417A			✓		✓	✓		
	422A		✓	✓					
	422D		(✓)	✓	(✓)	✓	✓		
	423A							✓	
	424A			✓	✓	✓	✓		
	427A		(✓)	✓	✓	✓	✓		
	428A		✓						
	434A			✓	✓		✓		
	437A			✓	✓	✓	✓		✓
	438A		(✓)	✓	(✓)	✓	✓		
	442A		✓	✓					
	507A		✓	✓				(✓)	
508B	✓								
M089	✓								
HFO	1234yf			✓	✓	✓	✓		✓
	1234ze			✓	✓	✓	✓		
Natural/not in kind	170	✓							
	290		✓	✓	✓	✓	✓		
	600a			✓	✓				
	717		✓	✓	(✓)		✓	✓	
	744		✓	✓	(✓)		✓	✓	✓
	1150	✓							
1270		✓	✓	(✓)					

*When carrying out a retrofit replacement, an oil change will be necessary. For more details see retrofit information.

1 Ozone Depletion Potential, UNEP (2006). R11 = 1

2 Global Warming Potential (100 year), IPCC 4th Assessment Report, 2007. CO₂ = 1

3 NIST REFPROP version 9.0, manufacturers' published data.

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